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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,296	04/29/2005	Olivier Constantin	123681	4805
25944	7590	10/24/2006		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER MAZUMDAR, SONYA	
			ART UNIT: 1734	PAPER NUMBER

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/533,296

Applicant(s)

CONSTANTIN ET AL.

Examiner

Sonya Mazumdar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/29/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Or

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 17, 18, 19, 22, 24, 27, and 28 are rejected under 35 U.S.C. 102(b) as being unpatentable by Jöhnck (WO 02/40181).

With respect to claims 17 and 24, Jöhnck teaches a method for producing a component, comprising a microstructured substrate and a complementary element mutually assembled using a PDMS adhesive film, or assembly joint. The method comprises the steps of: depositing an adhesive film on a flexible support film, pre-curing the adhesive film, contacting a microstructured substrate with the adhesive film on the transfer substrate, and peeling off the support film such that the assembly joint is formed by the areas of the adhesive film that were in contact with the microstructured substrate (paragraphs 0001, 0017, 0040). The method is carried out so that the chemical affinity between the microstructured substrate and the thin adhesive layer is

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greater than that between the transfer substrate and the adhesive layer (paragraph 0054).

With respect to claims 18 and 19, Jöhnck teaches pre-curing an adhesive to partially or completely polymerize the adhesive (paragraph 0052).

With respect to claim 22, Jöhnck teaches curing an adhesive through irradiation with light if it has not yet been completely polymerized after peeling off a support film (paragraphs 0065 and 0066).

With respect to claim 27, Jöhnck teaches using an adhesive that can be classified as photopolymerisable adhesives, pressure sensitive adhesive, or thermoplastic polymers (paragraph 0041).

3. Claims 29, 30, and 31 are rejected under 35 U.S.C. 102(b) as being unpatentable by Jöhnck.

Jöhnck teaches forming a microstructured component where two surfaces are bonded together by a bonding material. One substrate has a surface of a relief pattern, which defines enclosed microchannel structures. A cover is sealed to the patterned substrate (paragraphs 0005, 0017, and 0031).

4. Claims 29, 30, and 31 are rejected under 35 U.S.C. 102(e) as being unpatentable by Derand et al. (WO 03/055790)

Derand et al. teach forming a microfluidic device where two substrates are bonded together by a bonding material. One substrate has a surface of a relief pattern which defined at least a part of the walls of enclosed microchannel structures. The other substrate has a size to enable coverage of the first relief pattern on the first substrate and has a complimenting relief pattern (abstract; page 17, line 25 – page 18, line 2).

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"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

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commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 17, 21, 24, 25, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over “A Method for Local Application of Thin Organic Adhesive Films on Micropatterned Structures,” by Dreuth et al. in view of “Fabrication of Microfluidic Systems in Poly(dimethylsiloxane),” by McDonald et al.

With respect to claims 17, 21, and 24, Dreuth et al. teach a method for producing a component, comprising a microstructured substrate and a complementary element mutually assembled using an adhesive film, or assembly joint. The method comprises the steps of: depositing an adhesive film onto a transfer substrate, i.e. PTFE substrate, contacting a microstructured substrate with the adhesive film on the transfer substrate, and removing the transfer substrate such that the assembly joint is formed by the areas of the adhesive film that were in contact with the microstructured substrate (page 228, section 2.1; Figure 1). The method is carried out so that the chemical affinity between the microstructured substrate and the thin adhesive layer is greater than that between the transfer substrate and the adhesive layer (page 229, section 3.1).

Dreuth et al. does not teach removing a substrate by pulling one end thereof. McDonald et al. teach a soft lithography method where polydimethylsiloxane (PDMS) as a pattern transfer agent to a substrate (page 29, sections 1.3 and 2.1).

Although McDonald et al. do not teach removing PDMS by pulling one end thereof. However, Applicant teaches using PDMS as a transfer substrate (page 4, lines 19-21), therefore it is inherent that a PDMS substrate would be able to be removed by

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pulling. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (see MPEP § 2112.01).

Furthermore, it would have been obvious for Dreuth et al. to use a PDMS substrate as McDonald taught and would have been motivated to do so to enable pattern transfer to smooth, nonplanar surfaces and releases from delicate features of a mold without damaging them or itself.

With respect to claim 25, Dreuth et al. teach using a transfer substrate that is flat (Figure 1).

With respect to claim 26, Dreuth et al. teach using a transfer substrate, or auxiliary stamp, with a specific geometry and transfers adhesive onto designated areas of a substrate (page 231, final paragraph).

With respect to claim 27, Dreuth et al. teach using polybutyl acrylate, a well-known elastomeric material (page 228, section 2.1).

7. Claims 20, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dreuth et al. in view of McDonald et al. as applied to claim 17 above, and further in view of Thomas et al. (US 4,456,570) and Christ et al. (US 5,147,397)

The teachings of claim 17 are as described above.

Dreuth et al. in view of McDonald et al. do not expressly teach performing chemical activation to surfaces. Thomas et al. teach Thomas et al. teaches plasma etching bonding surfaces in laminating processes (column 2, lines 15-16; column 7, lines

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7-8). Christ et al. teach bonding plastic surface adherents where plasma processing is performed on at least one adherent (abstract; column 3, lines 23-36).

It would have been obvious to Dreuth et al. in view of McDonald et al. treat the bonding surfaces by plasma processing and would have been motivated to do so to increase adherence of the bond between the element and substrate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonya Mazumdar whose telephone number is (571) 272-6019. The examiner can normally be reached on 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Sonya Mazumder
SM

Curtis M. Hayes
CURTIS M. HAYES
PRIMARY EXAMINER